02-06-02

1775

IN THE UNITED STATES PATENT AND TRADEMARKK OFFICE

In re Application of:

Preikschat, et al.

Docket No. 2156-417

Serial No.: 09/904,993

Group Art No. 1775

Filed: July 13, 2001

Examiner: Robert Koehler

Title: Unknown

U.S. Patent and Trademark Office
P.O. Box 2327
Arlington, VA 22202
Attn: Ms. Jacqueline M. Stone, Director Technology Center 1700

TRANSMITTAL

I. Enclosed please find the following items regarding the above referenced patent application:

1. Protest Under 37 C.F.R. 1.291 (a) of Application No. 09/904,993 (8 sheets)
2. Certificate of Service (1 sheet)
3. Information Disclosure Citation Form For Protest Under 37 C.F.R. 1.291(a) (1 sheet)
4. Cited References

CERTIFCATE OF MAILNG

I hereby certify that this correspondence is being deposited on February 4, 2002 with the United States Postal Service via Express Mail No. ET138958222US in an envelope address to:

U.S. Patent and Trademark Office
P.O. Box 2327
Arlington, VA 22202
Attn: Ms. Jacqueline M. Stone, Director Technology Center 1700

Florence S Chamours

Date: February 4, 2002

Respectfully submitted,

By: Arthur G. Schaier

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PROTEST UNDER 37 CFR 1.291(a) of Application No. 09/904,993

In re:	Preikschat et al.		
Application No.:	09/904,993	**Group Art Unit:**	1775
Filing Date:	July 13, 2001	**Examiner:**	Robert Koehler
Title of Invention:	Unknown	**Current Status & Location:**	Unknown

ATTENTION: **Jacqueline M. Stone, Director, Technology Center 1700**

A protest is hereby submitted of Application Serial No. 09/904,993.

Protestor believes that this application is currently pending in the Office and that this protest is being submitted prior to the mailing of a notice of allowance under 37 CFR 1.311. Protestor would like to call Examiner's attention to the following remarks, which in Protestor's opinion would make the grant of a patent on the referenced application improper.

REMARKS

The following references are presented for Examiner's consideration and are listed on the attached Information Disclosure Statement. It is believed that these references, alone and in combination with each other, anticipate or render obvious claims of pending application 09/904,993.

1. U.S. Patent No. 6,287,704, to Preikschat et al., issued September 11, 2001 (the '704 patent).
2. U.S. Patent No. 5,368,655 to Klos, issued November 29, 1994 (the '655 patent).
3. U.S. Patent No. 4,349,392 to Huvar, issued September 14, 1982 (the '392 patent).
4. U.S. Patent No. 5,407,749 to Bishop, issued April 18, 1995 (the '749 patent).
5. U.S. Patent No. 5,393,354 to Bishop, issued February 28, 1995 (the '354 patent).
6. U.S. Patent No. 4,578,122 to Crotty, issued March 25, 1986 (the '122 patent).

7. U.S. Patent No. 3,843,430 to Kinder, issued October 22, 1974 (the '430 patent).

8. Great Britain Patent No. 2,097,024 to Hooker Chemicals and Plastics Corporation, issued October 27, 1982 (the '024 patent).

9. Publication in the August 1983 issue of Products Finishing Magazine, entitled "Chromate Coating from Trivalent Solution" (the 1983 Products Finishing Article).

10. Publication in the Summer 1982 edition of the Transactions of the Institute of Metal Finishing, Volume 60, Part 2, entitled "Non Chromate Passivation Treatment for Zinc" (the Metal Finishing Article).

11. Publication in the June 1988 issue of Products Finishing, entitled "Clear Chromates: Theory and Practice" (the 1988 Products Finishing article).

The earliest possible priority date for the 09/904,993 application is April 19, 1996, by benefit of a claim of priority to the '704 patent. As is readily seen, each of the foregoing references was published more than one year prior to the earliest priority date of the instant application and are therefore available as prior art references under 35 U.S.C. 102(b) and 35 U.S.C. 103.

Because the instant application claims the priority benefit of U.S. Patent No. 6,287,704, Protestor makes the assumption that the disclosure of the pending application is identical to, or at the very least is substantially similar to, that of the '704 patent. Therefore, reference is made to various terms that are known to be contained in the '704 patent, which Protestor believes are also contained in the instant application at issue.

To begin, we will address the overall concept, which the applicant of the instant application apparently believes is the basis for his invention.

> "By the present invention it is for the first time made possible to provide chromium(VI)-free conversion layers or passive layers on the basis of chromium(III), which do, however, furnish the corrosion protection of yellow chromations customary in the prior art – i.e., of chromium(VI)-containing passive layers.
>
> This is a singular novelty in the entire galvanization industry.
>
> Hitherto on a chromium(III) basis only clear to blue layers, referred to as "blue passivation" in technical circles, were known which are variously applied practically."

However, the foregoing positions are untrue. All of the references cited above reveal trivalent chromates with corrosion protection equal to that of chromium(VI)-containing passive layers.

Most of the cited references explicitly disclose a corrosion protection equal to or greater than that of chromium(VI)-containing passive layers (See specifically the '655 patent, the '392 patent, the Metal Finishing article, and the 1988 Products Finishing article). In addition, the Metal Finishing article, the '749 patent, the '392 patent, and the 1988 Products Finishing article reveal that trivalent chromates of various colors were achieved in the prior art.

Based on the disclosure of the '704 patent, Protestor has concerns about the sufficiency of the disclosure in the instant application. The applicants have confused matters by "coining" new and essentially indefinite and meaningless terms such as "chromitation", "chromium index", and "ligand replacement kinetics". The use of these terms has impaired the ability of anyone to reasonably compare the invention of the instant application with the prior art.

An explanation of these terms, as understood by Protestor, is described below for the benefit of the Examiner. It is clear from the description provided below that the concepts behind these terms were well known in the prior art.

Chromitation:

> "For purposes of the present inventions the applicant coined the term "chromitation" in order to clearly distinguish the present invention from the chromations which are customary in the prior art, and in order to make clear that neither the obtained conversion layer nor the compositions (concentrates/passivation baths) whereby the coatings according to the invention are produced contain the toxic chromium(VI), whereas the obtained corrosion protection nevertheless is superior to that of yellow chromation."

Therefore *chromitation*, as defined, simply means that the conversion layer is free of chromium(VI) and that the corrosion protection of the layer is superior to that of yellow chromations. The corrosion protection of yellow chromations is typically 100-200 hours of protection in a salt spray cabinet.

Many, if not all, of the prior art references cited above disclose conversion layers that are free of chromium(VI) and having a corrosion protection superior to that of yellow chromations. See in particular the '430 patent, the 1983 Products Finishing article, and the Metal Finishing article.

Chromium index:

> "The chromium index is the average chromium content in the layers>1% Cr, multiplied by the layer thickness. The chromium index is proportional to the chromium quantity on the surface (mg/m^2)."

While none of the references specifically disclose a *chromium index* of the conversion layer, we can be certain that if the prior art treats the same surfaces (i.e., zinc, zinc alloy, cadmium, cadmium alloy) with the same chemicals, under the same conditions (i.e., temperature, immersion time, pH), then the same result must occur. The chromium content in the conversion layer is dependent on the amount of chromium present in the passivation solution. The prior art documents disclose trivalent chromium solutions resulting in a trivalent chromium conversion layer having the same level of corrosion protection as disclosed by the instant application (*assuming that the disclosure of the instant application is substantially similar to that of the '704 patent*). Therefore, the chromium content across the conversion layer, and thus the chromium index, of the prior art passivation solutions would inherently be similar to the instant application.

Ligand replacement kinetics:

The instant application does not specifically define what is meant by "ligand replacement kinetics more rapid than the fluoride replacement kinetics in chromium (III) fluorocomplexes". Furthermore, the instant application does not contain any information that would allow one of ordinary skill in the art to determine with any degree of certainty the reaction speed of fluoride replacement kinetics and to comparatively determine the reaction speed of other chelate ligands in order to make a determination that the reaction speed of the other chelate ligands would be more rapid.

It is believed that the speed of fluoride reaction kinetics is slower because fluoride binds more tightly to the chromium (III) complex than other chelate ligands. Therefore, chelate ligands that bond more loosely to the chromium (III) complex would tend to have more rapid replacement kinetics. However, the terminology is unclear and is not widely used in the art.

The application states that "the chromium (III) complex preferably has chelate ligands which are selected from the group consisting of dicarboxylic acids, tricarboxylic acids, hydroxycarboxylic acids, acetylacetone, urea, urea derivatives, mixtures thereof, among each other as well as in mixed complexes with inorganic ions and H_2O" (*assuming that the disclosure of the instant application is substantially similar to that of the '704 patent*).

Many of the prior art documents cited above disclose chromium(III) complexes having chelate ligands that are the same as those disclosed by the instant application. For example, the '655 patent discloses oxalic acid (see column 3, lines 42-60), and the '392 patent discloses an organic carboxylic acid or a salt thereof, including malonic, maleic, succinic, gluconic, tartaric, and citric (see column 6, lines 33-38). These prior art references are disclosed in more detail below.

In addition, several of the cited prior art documents disclose phosphate and hypophosphite ligands. It is believed that these chelate ligands would also have ligand replacement kinetics more rapid than fluoride replacement kinetics because, similarly to

carboxylic acid ligands, these ligands would also bond more loosely to the chromium(III) complex than fluoride ligands.

DISCUSSION OF THE PRIOR ART

Summary of the Relevant Teachings of Each Reference

1. **The '655 patent:** the '655 patent teaches a trivalent chromating solution for chromating zinc, cadmium, and their alloys and a process for its use (see column 2, lines 42-50). The trivalent chromating solution revealed in Example 1 comprises:

    - chrome(III) nitrate
    - oxalic acid

    Good corrosion resistance is noted with salt spray testing results of 100 hours of corrosion protection (see Table 3).

2. **The '392 patent and the '024 patent:** the '392 patent and the '024 patent teach a trivalent chromating solution (see column 1, line 67 through column 2, line 1 of the '392 patent and page 4 of the '024 patent) which is effective to impart improved corrosion resistance to zinc and zinc alloy surfaces and to impart a desired surface finish which can range from clear bright to a light-blue bright to a yellow iridescent appearance, and which produces a passivation film of improved clarity and hardness. (See column 1, lines 51-61 of the '392 patent and page 6 of the '024 patent)

    The trivalent chromating solution comprises from 0.05g/l to saturation of trivalent chromium, a pH of about 1.2-2.5, and mineral acids, such as sulfuric acid, nitric acid, or hydrochloric acid to adjust pH. (See column 2, lines 1-5 of the '392 patent and page 6 of the '024 patent).

    In addition, the '392 patent and the '024 patent specifically teach that the addition of an organic carboxylic acid will improve the hardness of the passivation film. (See column 2, lines 8-21 of the '392 patent and page 6 of the '024 patent). Preferred organic carboxylic acids for use in this regard include malonic acid, maleic acid, succinic acid, gluconic acid, tartaric acid, citric acid, and salts of the foregoing. (See column 6, lines 33-38 of the '392 patent and page 7 of the '024 patent).

    Treatment temperatures preferably range from 40 °F to 150 °F, with a preferred treatment time of 10 seconds to 1 minute.

    Halide ions and an additional metal ion are noted as optional components of the composition.

3. **The '749 patent and the '354 patent:** the '749 patent and the '354 patent teach a trivalent chromating solution for producing an iridescent chromation coating on zinc alloy surfaces, which trivalent chromating solution comprises:

    - trivalent chromium ions
    - a phosphorus acid selected from phosphoric acid, phosphorus acid, hypophosphorus acid and mixtures thereof

    The treatment solution has a pH of about 1 to 2.5, and treating temperatures range from about 38 °C to about 75 °C. (See column 2, lines 50-68).

    Halide ions are noted as an optional component of the composition. (See column 4, lines 25-30).

    Salt spray results range from 96 to 234 hours. (See column 7, lines 15-25). Elevated temperature is noted as being important in order to obtain an iridescent coating. (See column 5, lines 54-60).

4. **The '122 patent:** the '122 patent teaches an aqueous acidic chromium passivating solution comprising chromium ions substantially all of which are present in the trivalent state at a concentration ranging from 0.05 g/l up to saturation (see column 2, lines 33-40). The trivalent chromium solution revealed in Example 1 comprises:

    - 30 g/l chromium (III) sulfate
    - 30 g/l citric acid
    - 90 g/l sodium nitrate
    - 11 g/l nickel ions
    - 30 g/l wetting agent

    The treating solution has a pH of 1.2 – 2.5 and is applied at a temperature ranging from 40 – 150° F with a contact time of 1 second to 60 seconds or longer.

5. **The '430 patent:** the '430 patent teaches a dry pulverulent composition and an aqueous solution prepared therefrom for use as a bright dip bath for zinc and/or cadmium surfaces. The composition contains a nitrate salt, a chelating agent such as citric acid, and a trivalent chromium compound (see column 2, lines 30-59). The trivalent chromium compound is present in an amount up to 15% by weight of the total composition.

6. **The 1983 Products Finishing article:**

    This article reveals that trivalent chromating solutions were in use prior to 1983 and that they achieved a corrosion protection of 24-200 hours of salt spray resistance.

7. **The Metal Finishing article:** this article teaches trivalent chromium solutions comprising:

- trivalent chromium (chromation)
- hypophosphite
- nitrates
- boric acid (optional ingredient)

The article teaches that strong complexors for trivalent chromium (such as EDTA) are not useful. Weak complexors such as hypophosphite are useful. It is noted that higher solution temperatures enhance the rate of formation of the passivation film.

Both blue and yellow iridescent passivation films are formed with salt spray corrosion protection of up to 240 hours. It is further noted that the color and protective value of the conversion coating can be altered by variations of pH, temperature, and immersion time.

The article teaches that the color and protective value of the conversion coating can be altered by variation of solution composition, pH, temperature, and time of immersion and that the time of immersion dictates the thickness and hence the color of the film.

"**The time of immersion dictates the thickness and hence the color of the film. Clear films are produced in the shortest times, typically up to 30 seconds; blue films are produced after longer times of immersion, typically 45 to 90 seconds, and (yellow) iridescent films are produced with even longer periods of immersion.**" (See page 46).

"**Iridescent films can be deposited by extending the time of immersion, raising the temperature of the solution, or using a more concentrated solution.**" (See page 47).

"**The trivalent chromium coatings have approximately the same resistance to salt spray as similarly colored coatings produced from (hexavalent) chromate containing solutions.**" (See page 47).

8. **The 1988 Products Finishing article:** the article states:

"In developing a trivalent chromate we wanted to produce a compound that would offer properties equal to or better than those provided by a hexavalent solution, with respect to color, corrosion resistance, solution life and total cost." (See page 72).

A green colored passivate film is noted with corrosion resistance "better than hexavalent chromate under the same conditions." (See Table VII).

CONCLUSION

In conclusion, we can be certain that if the prior art treats the same surfaces (i.e., zinc, zinc alloy, cadmium, cadmium alloy) with the same chemicals under the same conditions (i.e., temperature, immersion time, pH), then the same result must occur. Surely, the same chemicals could not have reacted differently for the applicants of the instant application than they did for the artisans of the prior art, for if they did, the instant application has not adequately described its invention.

Thus, it is clear that the invention of the instant application was known completely in the prior art. It is respectfully requested that Examiner take these remarks into consideration prior to granting a patent on the instant application.

Arthur G. Schaier, Reg. No. 37,715
Protestor

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

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Application No.	09/904,993
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P.O. Box 2327
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Attn: Ms. Jacqueline M. Stone, Director Technology Center 1700

CERTIFICATE OF SERVICE

The undersigned hereby certifies that a true and correct copy of the foregoing Protest Under 37 C.F.R. 1.291(a) of Application No. 09/904,993 was served by mailing a copy to John Murtaugh, Pearne, Gordon, McCoy & Granger, 1200 Leader Building, Cleveland, Ohio, 44114, attorney of record for the above issued patent, by express mail, post office to addressee, postage prepaid on February 4, 2002.

Arthur Schaier, Reg. No. 37,715
Protestor